The promise and challenges of generative AI in education

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Abstract

ABSTRACT Generative artificial intelligence (GenAI) tools, such as large language models (LLMs), generate natural language and other types of content to perform a wide range of tasks. This represents a significant technological advancement that poses opportunities and challenges to educational research and practice. This commentary brings together contributions from nine experts working in the intersection of learning and technology and presents critical reflections on the opportunities, challenges, and implications related to GenAI technologies in the context of education. In the commentary, it is acknowledged that GenAI's capabilities can enhance some teaching and learning practices, such as learning design, regulation of learning, automated content, feedback, and assessment. Nevertheless, we also highlight its limitations, potential disruptions, ethical consequences, and potential misuses. The identified avenues for further research include the development of new insights into the roles human experts can play, strong and continuous evidence, human-centric design of technology, necessary policy, and support and competence mechanisms. Overall, we concur with the general skeptical optimism about the use of GenAI tools such as LLMs in education. Moreover, we highlight the danger of hastily adopting GenAI tools in education without deep consideration of the efficacy, ecosystem-level implications, ethics, and pedagogical soundness of such practices.